

least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

- (2) collecting the cultured cells; and
- (3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

E<sup>1</sup>  
wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

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33. (Amended) A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

E<sup>2</sup>  
(1) culturing a microorganism, belonging to the species *Mortierella alpina* and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

- (2) collecting the cultured cells; and
- (3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

E2 wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for about 5 to 10 days with agitation and an aeration rate of at least about 1 vvm.

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Please add new claim 34 as follows:

-34. (New) A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

(1) culturing a microorganism of strain *Mortierella* SAM 2197 and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

F3 (2) collecting the cultured cells; and

(3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

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